

# LESSON 10

## Data Analysis

### Applicable TEKS

Science Grade 4	Science Grade 5
4.2 E, F	5.2 E, F

### Duration

One 40-minute lesson

### Objectives

Students will share their data and enter any missing data into their handouts. Students will understand that there are one or more reasons for their results.

### Prerequisites

Students should complete the survey handouts (5 through 9) before starting this lesson.

### Materials

- ▶ Survey handouts (5 through 9)

### Procedure

1. Have students share their data.
  - a. Students that didn't perform every test should fill in any missing data using the results from other students.
  - b. Discuss any differences and similarities between their data. Also discuss how repeating the same test or experiment increases the reliability of results.
2. Use the following example to explain that one or more reasons caused the results of their data—if you recorded low dissolved oxygen levels, it could have been caused by:
  - a. the decay of organic wastes (an oxygen-demanding substance);
  - b. high water temperature (it holds less dissolved oxygen, respiration increases, etc.);
  - c. tests conducted in the morning (before photosynthesis was fully active);
  - d. few aquatic plants and algae in the water (low photosynthesis levels);
  - e. poor natural aeration (less atmospheric oxygen entering the water);
  - f. sampling error (inaccurate test results);
  - g. etc.
3. Explain that it might be possible to find the main cause, but it can be very difficult. At best, you might be able to speculate about the main cause.
4. Tell your students that the next session will use problem-solving strategies to find any problems with your stream, discover possible causes, and then narrow this list down to the possible main cause.
  - c. Point out that the stream appearance and water quality may change along its length (especially if students surveyed in different areas along the stream).
  - d. If students report different water quality in the benthic-macroinvertebrate survey, you should combine everyone's results together and determine the water quality.